

### 3.5 Wildlife Resources

The following description of the existing affected environment includes the Proposed Action and Alternatives. Unless otherwise specifically noted, there are no substantial differences in the wildlife resources above the confluence with Water Hollow and Quitchupah drainages, where Alternative D diverges from Alternatives B and C.

#### MAMMALS

The diversity of mammal species includes members of the rodent family, bats, intermediately sized species such as skunks, coyotes, badgers, bobcats, cottontails, and jackrabbits, and big animals including elk, mule deer, mountain lion, and bear.

#### **Big Game**

Elk (*Cervus canadensis*) and mule deer (*Odocoileus hemionus*) are highly visible mammals that commonly occur in the area. The Project Area is within the Manti-Nebo Herd Unit (#16) for elk and mule deer. Elk population estimates are conducted yearly by the UDWR utilizing air and ground based observations. Based upon yearly census data, an elk herd of approximately 700-1200 individuals reside within and adjacent to the Project Area year round (personal communication, Jeff Grandison and Leon Bogedahl, UDWR, 2002). In 1998, a total of 1,211 elk were observed within and near the Project Area and a total of 894 elk were observed in 2001, a heavy snow year. Sightings of elk utilizing the Project Area are found in **Figure 3-4**. UDWR does not conduct census data for mule deer in the Project Area.

The UDWR has identified various types of ranges for each species, including critical and high value winter ranges. Critical and high value winter use and high value summer use areas for elk, and critical and high value winter use areas for deer occur within the Quitchupah Creek drainage (**Figure 3-4**). These types of ranges are defined as:

Critical or crucial ranges are sensitive use areas that are limited in availability or provide unique qualities for high interest wildlife. These areas constitute irreplaceable, critical requirements for these species.

High value ranges are intensive use areas that due to relatively wide distribution do not constitute critical values but which are highly important to high interest wildlife.

Elk winter range use occurs on snow-free open areas, such as the grassland and sagebrush vegetation types associated with lower elevations and drainage bottoms. Mule deer use the south-facing slopes, mountain shrub communities, and riparian areas in the drainage. The mule deer move out of the area to higher elevations in spring to heavier cover for fawning and areas of greater herbaceous and shrub cover for summer.

High value summer range for deer occurs adjacent to the Project Area south of Convulsion Canyon. The Water Hollow Benches area, through which an alternate alignment (Alternate D) would pass, is also within critical and high value elk and deer winter range. In high snow years, this area is classified as critical elk winter range. Ground based surveys in the 1980's through the early 1990's showed elk (150-300 individuals) regularly utilizing the Water Hollow Benches and drainage area, including the Alternative D alignment (personal communication, Ron Hodson, UDWR, 2002). In the 1991-1992 elk census, 287 elk utilized the Water Hollow Benches area. A 1997 elk census reported a concentration of elk on the Saleratus Benches area, located between the Water Hollow Benches and SR-10. Critical elk winter range occurs adjacent to the Project Area, in high snow years the high value elk winter range in the Project Area is reclassified as critical elk winter range.

The Project Area is within big game migration summer and winter range routes. The migration route runs generally in a west-east direction from the highlands to lowlands and benches. Big game may roam in a north-south pattern in the winter season. The Quitchupah Creek Road alignments (Alternative B and Alternative C) run parallel to the migration route. The Water Hollow road alignment (Alternative D) would bisect the migration route.

In the 1950's, vegetative chainings and seedings were completed on Water Hollow and Saleratus Benches in order to attempt to improve forage for wildlife and livestock. These areas are now in poor condition and do not support any more forage for elk than the adjacent unseeded sagebrush and pinyon-juniper communities. However, these benches continue to support fairly large numbers of wintering elk and deer.

In addition to elk and deer, several moose (*Alces alces*) have been relocated into the Fishlake National Forest with marginal success. One moose has been known to travel through the Quitchupah drainage during the winter months (Rasmussen, 1999). Black bear (*Ursus americanus*) are also known to occasionally occur at the higher elevations of the Quitchupah Creek drainage, but are not very common.

### **Wildlife and Noise**

Currently there is a minimally used dirt road/trail through Quitchupah Canyon and a lesser used dirt track/trail on the Water Hollow Benches. Traffic related noise is currently distant mining and coal traffic activity and infrequent/sporadic to non-existent localized man-made noise in the Project Area.

Wildlife species are often less common or absent near roads, which effectively results in a "road-avoidance zone" (Forman et al. 2003). The road-avoidance zone is interpreted as mainly due to traffic noise, rather than the existence of the road itself, and is evident from correlations of wildlife density with distance from roads (Forman et al. 2003). This zone varies by species. Deer appear to have an avoidance zone of 100-300 meters (328 – 984 feet) from roads and elk may have a road-avoidance zone several hundred meters (984 feet+) wide depending on the number of vehicles passing per day.

### **Bats**

Riparian areas within the Quitchupah Creek drainage provide foraging habitat for a variety of bat species. The forested areas and surrounding escarpments provide roosting sites for summer resident bats and hibernation sites for year-long resident bats. Bats use riparian areas extensively for foraging due to the abundance of insects. The Townsend's big-eared bat (*Corynorhinus townsendii*) and the spotted bat (*Euderma maculatum*), both sensitive forest species, are discussed in greater detail in **Section 3.7** and the Final Special Status Species Technical Report, Quitchupah Creek Road EIS (JBR, 2001f).

### **BIRDS**

A variety of vegetation types throughout the Project Area provide habitats for many species of birds. While each vegetation type offers important habitat components, the riparian areas that occur along Quitchupah Creek are the most heavily utilized by the birds in the area. The riparian areas are important during migration as these are often the only habitats within the arid west that have similar characteristics of more mesic habitats found outside the Intermountain region. The abundance of insects makes riparian areas important foraging habitats for species that nest in the grass or shrublands adjacent to the riparian areas.

On the Water Hollow Benches, south of Quitchupah Creek, birds associated with the dominant Pinyon-Juniper/Mountain Brush communities are most likely to occur.

**Raptors**

The timbered areas within the upper drainage area of Quitchupah Creek, as well as escarpments in the Project Area, provide numerous nesting opportunities for raptors. Foraging opportunities for raptors are also plentiful and occur throughout the various habitat types found within the area. The aerial survey performed by UDWR in 2000 identified 13 raptor nests within one mile of the proposed Quitchupah Creek Road alignment: one prairie falcon (*Falco mexicanus*) nest and 12 golden eagle (*Aquila chrysaetos*) nests. Of the 12 golden eagle nests, three were listed as active, seven as inactive, and two were tended. The prairie falcon nest was listed as active during the 2000 aerial survey. The recommended seasonal (i.e., timing restriction) and spatial (i.e., proximity restriction) buffers for the prairie falcon and golden eagle are 4/1-8/31 and 0.25 miles, and 1/1-8/31 and 0.5 miles, respectively (Romin and Muck 2002). Nine of the 13 nests (all golden eagle) were located within 0.5 miles (the spatial buffer zone distance required for active golden eagle nests during the dates of January 1 through August 31) of proposed activities and five of those were either tended or active in 2000.

The survey also identified four raptor nests within one-half mile of portions of the Water Hollow alignment (Alternative D) that occur apart from the Quitchupah Creek Road area: two tended golden eagle nests, one active great horned-owl nest (0.25 mile buffer, 12/1-9/31), and one American kestrel (buffer not necessary) nest. Raptor surveys conducted in Spring 2005 showed eight inactive golden eagle nests within 0.5 mile of the Proposed Quitchupah Creek Road and one tended golden eagle nest near the top of the route in Convulsion Canyon (UDWR 2005). Helicopter surveys over the Water Hollow benches recorded four inactive golden eagle nests, two tended golden eagle nests, and one great horned owl nest.

Several other raptors, such as red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), and sharp-shinned hawk (*Accipiter striatus*) may nest in the aspen or conifer stands, or forage within the various vegetation types of the analysis area.

**Upland Game Birds**

Ruffed grouse (*Bonasa umbellus*) have been found in the upper reaches of the Quitchupah Creek drainage area. No known sage grouse (*Centrocercus urophasianus*) leks are located within the Project Area or the general vicinity. Chukar (*Alectoris chukar*) do occur in the drainage area, but are not abundant.

**AMPHIBIANS**

UDWR identified seven amphibian species that could potentially occur within the Project Area: one salamander (tiger salamander - *Ambystoma tigrinum*), four toads (Great Basin Spadefoot toad - *Spea intermontanus*, boreal toad - *Bufo boreas*, Great Plains toad - *Bufo cognatus*, Woodhouse's toad - *Bufo woodhousei*), and two frogs (boreal chorus frog - *Pseudacris maculata*, northern leopard frog - *Rana pipiens*). Amphibians' dependence on water limits their distribution in the Project Area. Perennial water is available in Quitchupah Creek and associated springs, as well as lower portions of East Spring Canyon Creek and lower Water Hollow Creek at their confluences with Quitchupah Creek. Ephemeral water sources occur in minor drainages that are tributary to Quitchupah Creek. These sites are used as breeding sites and areas where the young develop.

One amphibian species was observed during the amphibian surveys conducted in the Quitchupah Creek drainage in 1999. Numerous tadpoles and young Great Basin Spadefoot Toads (*Spea intermontanus*) were discovered in a wetland area south of Quitchupah Creek, located in the SW¼ of Section 16, Township 22 South, Range 5 East. No other amphibian species were observed within the Quitchupah Creek Road alignments (Alternatives B and C). Amphibian surveys were not conducted within the Water Hollow Benches area since appropriate habitat is not present. Similar species to those potentially found in the Quitchupah Creek Road alignment also have the possibility of being found within the Water

Hollow area, however, the lack of riparian/wetland habitat limits their potential abundance.

### REPTILES

Because of the different habitat types found within the Project Area, the potential for a variety of reptile species to occur is fairly high. Based upon habitat requirements, of the 36 species of reptiles that occur in southeastern Utah, less than half could potentially occur within the area. The sagebrush lizard (*Sceloporus graciosus*) and western terrestrial garter snake (*Thamnophis elegans*) were two of the common reptiles observed during various field studies.

### MANAGEMENT INDICATOR SPECIES

This Fishlake National Forest Plan designates certain species as "management indicator species" (MIS). There are both high interest MIS (such as elk, mule deer, Bonneville cutthroat trout], and ecological indicator MIS (such as northern goshawk cavity nesters, macroinvertebrates and resident trout). These species are monitored at the Forest plan level in order to determine the effects of forest management under the plan on habitats and wildlife species.

A complete description of each plan-designated MIS and the forest's monitoring results are contained in the Technical Report Addendum and a more recently prepared report, Life History and Analysis of Endangered, Threatened, Candidate, Sensitive, and MIS for Fishlake NF (February 2004).

### Potential Impacts To Wildlife

The Environmental Consequences of each Alternative, in regard to wildlife, are discussed below. First, regulatory consequences are described and then potential impacts to the resource itself.

### **REGULATORY**

Although specific permits would not be required for construction activities in regard to wildlife resources, UDWR has been consulted and consultation with UDWR would continue for mitigation and reclamation requirements for impacted big game range use areas and other wildlife related issues. These requirements would likely include construction timing limitations to prevent impacts to big game and raptors during key seasons.

### **NO ACTION - ALTERNATIVE A**

Selection of the No Action Alternative would not result in any direct, indirect, or cumulative impacts to wildlife resources in the Project Area. The road would not be constructed in the Quitchupah Creek drainage and no disturbance would be anticipated. The existing environment in the Quitchupah Creek drainage would remain unchanged and current uses would be expected to continue for the near future.

### **QUITCHUPAH CREEK ROAD ALIGNMENT - ALTERNATIVE B**

#### *Wildlife*

The proposed road in the Project Area could interfere with big game use of the winter ranges on the benches and in the agricultural fields. Traffic on the roads in the form of large loaded trucks driving downhill would be a hazard to all wildlife, especially big game and raptors.

Raptor nesting within the Project Area could be affected by road construction; however, the UDWR buffer periods for raptors during critical nesting times would minimize this potential impact. Birds that are established in the area would be less likely to be affected by the increased activity and disturbance related to road construction outside of the critical nesting season.

The Project Area is home to a wide variety of wildlife species that could be impacted by the construction of the road and subsequent haul truck traffic.

As described in the water resources section, there would be some potential for increases in sedimentation and further destabilization of Quitchupah Creek and other creeks in the Project Area that could impact fisheries and aquatic macroinvertebrates in the streams. The loss of the hydric fringe and stream-side wetlands until reclamation and mitigation were completed could temporarily affect the reproductive success of fish species and some macroinvertebrates species that depend on vegetation for cover and prey.

Habitat fragmentation would occur along the alignment. Numerous studies have shown that many species of small mammals avoid roads (Adams, 1983; Conrey 2001; Mader 1984). The effect of the road would essentially divide these populations. Many studies have found that roadways decrease the diversity, spatial distribution, and density of wildlife that avoid roads. Studies suggest that the effect of habitat fragmentation is worse for a four lane road than a two lane road; however, the frequency of traffic along these roads plays a more important role for the effect on animal populations (Noss, 2002). Species dependant on Quitchupah Creek for forage and reproduction would have to cross the roadway. Road kills of small mammals, reptiles, and amphibians would likely increase. Animals attracted to the roads, such as reptiles for basking, small mammals attracted to roadside vegetation, birds using road gravel for digestion, and wildlife that use roads for travel corridors, would be more susceptible for vehicular collisions (Noss, 2002).

Additional studies have documented that suitable habitat adjacent to roads experience a loss of overall populations of wildlife, especially small mammals, reptiles, amphibians (Reh and Seitz 1990), and birds (Reijnen and Foppen, 1994; Van Der Zande et. al., 1980; Reijnen, Foppen, Thissen, 1995). Most of the adjacent riparian habitat, which was identified as poor quality riparian habitat, would be near the proposed road alignment. Though no quantitative studies of riparian avian species, amphibians, reptiles, or small mammals have been conducted in the Project Area, it can be assumed that the habitat may be under-utilized after construction of the road. The loss of wildlife to vehicle collisions may reduce the overall populations of wildlife in the area even though the habitat in the area is improved. Without long term trend data on the species of wildlife that occur in the area, it is difficult to quantify the loss of wildlife populations and the effects of the proposed roadway.

## MAMMALS

### **Big Game**

Road construction activities would result in total new surface disturbance of 92.3 acres. All disturbances would occur within deer and elk high value or critical winter range (See **Figure 3-4**). After reclamation of some of the disturbance associated with construction in the road corridor, and reclamation of all of the staging areas, there would be a net permanent loss of 45 acres. Complete revegetation of the 47 reclaimed acres would probably require several years.

Displacement of resident big game would occur during construction activities. However, the majority of construction activities would occur during the summer and fall when big game are not as abundant in the Project Area, thus limiting the displacement impact.

After construction, big game would likely avoid or move away from the disturbance (i.e. vehicle traffic and noise) caused by the road to other suitable habitat areas as elk tend to avoid roads. Habitat near the road would be underused as the big game animals would tend to be displaced from this area. According to studies, the density of animals and overall species richness decrease with increasing proximity to a road

(USFWS, 1999). This displacement could alter the natural distribution patterns and result in the overuse of other habitat areas if big game animals become concentrated, especially during winter.

Wildlife fencing would exclude the majority of animals (wildlife and livestock) from the road, therefore mortality and injury of big game resulting from collisions with vehicles is unlikely to occur. Also, this alignment runs parallel to the migration route for big game which would further reduce the likelihood of vehicle collisions to migrating big game as compared to the Alternative D alignment.

As vegetation becomes reestablished in the reclaimed portions of the road construction corridor, game may be attracted toward the road by palatable species growing within the corridor; agency-specified seed mixes that include alfalfa, yellow sweet clover, and crested wheatgrass would attract big game animals to the road side during certain times of the year. Fencing would keep them off the road but would likely allow access to some of the reclamation areas.

### **Bats**

Impacts would occur to suitable foraging areas for bats within riparian habitat. Approximately 1.0 acre of riparian habitat and .33 acres of wetlands (potential foraging habitat) would be impacted by the construction activities. The forested areas and surrounding escarpments that potentially provide roosting sites for summer resident bats and hibernation sites for year-long resident bats might temporarily be impacted by blasting activities that may be required during construction.

### **BIRDS**

Several of the habitat types used by birds in the Project Area would be impacted by construction activities. Of the 92.3 acres of proposed new surface disturbance, most of the disturbance would occur within habitats that are abundant throughout the Quitchupah Creek drainage. However, the riparian habitat that would be impacted near the western end of the alignment would be reclaimed with riparian plantings. The types of birds that currently use this riparian area may leave the area during construction activities but would return when mitigation is complete.

Construction activities would cause displacement of birds to similar adjacent areas and would likely have minor impacts to the displaced birds. Increased mortality from vehicle collisions would also be likely to occur.

### **Raptors**

The buffer zones and seasonal construction restrictions would be required by UDWR in regard to active nest sites would prevent impacts to nesting raptors due to construction activities. Abundant foraging opportunities exist adjacent to the proposed project, thus limiting the impacts caused by the proposed new surface disturbance. The presence of a paved road would likely increase road kill in the area, resulting in an additional food source that could increase raptor populations in the area. However, the road would be fenced with 8-foot tall wire mesh fencing, to keep most larger mammals out of the road corridor. Further, small and large animal carcasses would be removed from the road daily to minimize potential scavenging on the roadway by raptors.

### **AMPHIBIANS**

Impacts would occur to some, but not all, of the suitable amphibian habitat throughout the Quitchupah Creek drainage. Approximately 0.33 acres of wetlands and 1,140 feet of riparian zone in East Spring Canyon would be affected by the construction of the road. However, the wetland area, in which the Great Basin spadefoot toads were observed during the summer surveys, would not be disturbed. After construction, the paved road and increased traffic would cause increased mortalities to amphibians,

especially after periods of rainfall when amphibians are most active and could venture onto the road. Species dependant upon Quitchupah Creek and East Spring Canyon creek would experience habitat fragmentation as a result of the road alignment. The creation and enhancement of 1.22 acres (net) of new wetlands would provide habitat to increase amphibian populations in the area, as would the new stream alignment.

#### REPTILES

New surface disturbance during construction activities would displace, kill, or injure reptiles within the area. After construction, the paved road and increased traffic would cause increased mortalities. Displaced reptiles would reestablish in undisturbed habitats away from the road.

#### MANAGEMENT INDICATOR SPECIES

Approximately 3.0 acres of sagebrush habitat out of approximately 380 acres in the vicinity would be affected by Alternative B. Displacement of sagebrush dependant migratory and resident species would likely occur. Very few sagebrush dependant species were observed during 2002 surveys (see Supplemental Technical Report); therefore, impacts to sagebrush dependant species would likely be minimal.

No spruce/fir/aspen forested areas, which are habitat for cavity nesters, would be impacted by Alternative B. No dedicated cavity nesting species surveys have been conducted within the Project Area.

Approximately 1.0 acre of riparian vegetation would be impacted by Alternative B. Although no dedicated surveys for riparian dependant bird species have been conducted in the Project Area, it is likely that some of these species would be displaced by construction of the road. The creation and enhancement of 1.22 (net) acres of new wetlands habitat and replacement of riparian in East Spring Canyon would enhance the habitat from current conditions that may support a greater population of riparian dependant species. In addition, these wetlands would serve as sediment traps, enhancing overall water quality that would be beneficial to macroinvertebrate and fish species.

#### **ALTERNATE JUNCTION WITH SR-10 AND ALTERNATE DESIGN - ALTERNATIVE C**

Impacts to wildlife resources would be similar to those described for the Alternative B with the exception of impacts to big game and raptors. Under this alternative, underpasses to facilitate big game movements would be installed, reducing the potential impacts to big game caused by vehicle collisions. The box culvert underpasses would be designed to allow passage of deer and elk. In addition, this alternative would also reduce the susceptibility of raptors from vehicle collisions. Installation of the wildlife underpasses would presumably result in less road-killed wildlife for the raptors to feed on, thus decreasing the likelihood of raptors foraging on the road.

#### **WATER HOLLOW ALTERNATE ALIGNMENT - ALTERNATIVE D**

Impacts to wildlife resources would be similar to those described for Alternative B, except that an additional 54 acres (bringing the total to 146.3 acres) of impacts to wildlife habitat would occur under this alignment. In addition, according to UDWR population counts, the Saleratus Benches appear to winter greater elk numbers than the Quitchupah drainage, so impacts to that species may be greater for this alternative than for Alternatives B or C. Since the road alignment across Water Hollow Benches would be fenced, deer and elk would be deterred from entering the road, thus reducing frequency of collisions with vehicles during winter months. Also, the loaded coal trucks would be traveling at slower speeds across these benches due to weight and road grade, while empty coal trucks would be ascending the grade, factors which allow drivers more time to avoid colliding with big game that do end up on the road.

Big game would, however, need to cross the road to reach summer/winter ranges. The movement of big game through these ranges would be affected by the placement of the five wildlife bridge crossings.

### **MITIGATION AND MONITORING FOR BUILD ALTERNATIVES B, C, and D**

A new wetland complex area would be created and one wetlands area would be enhanced to replace the wetlands and the hydric fringe along the realigned creek segments as a result of the construction of the roadway. One existing wetlands area would be enlarged and stabilized, the other would be created by diking perennial flows and forming shallow ponds with marsh borders. All of the water sources for the wetlands would be perennial natural flows. A total of 1.22 acres would be created (see Section 2.2). Species dependant on wetlands habitat including amphibians, birds, small mammals, and reptiles, may increase in population numbers. The replacement channel would provide all the habitat values of the original channel in East Spring Canyon.

Wildlife fencing would be installed on both sides of the road alignment to prevent big game access to the road corridor. The fencing would be 8-foot tall woven wire fence (See **Appendix B**). Escape structures would be provided every mile.

Although fencing is intended to restrict big game access to the road, the haul route would be patrolled daily, during daylight hours, to pick up and dispose of any animal carcasses (wild and domestic, large and small) in order to keep the road surface clear. As outlined in the Applicant Committed Measures in Chapter 2, this would reduce scavenging on the road surface by raptors and vultures. The Sevier County SSD would be responsible for removing carcasses to a specified disposal area in accordance with the regulations of the State Board of Health. The SSD or the SSD's contractor would secure and maintain any necessary license or permits required by State or local authorities to perform this service.

Continued monitoring of MIS species by the Fishlake National Forest would be conducted to ensure that the populations remain in stable conditions. Wetland sites, one enhanced site and one created site, the stream realignment and riparian zones in East Spring Canyon and reclamation of land disturbed by the road construction activities would be monitored to ensure revegetation efforts are met (see Chapter 2).

### **MITIGATION SPECIFIC TO BUILD ALTERNATIVE D – WATER HOLLOW ROAD**

In addition to road fencing for wildlife as described above, five bridges have been recommended by UDWR for installation in selected drainages across the Water Hollow benches to allow for elk passage. The locations of these structures/culverts are shown on the strip maps in **Appendix B**; the design of these structures would meet the UDWR standards for minimum size and openness.

A conversion of 700 acres of pinyon-juniper woodlands at six sites on Water Hollow and Saleratus Benches would provide additional forage for elk and deer. These sites would be seeded and monitored with a goal of sufficient forage to maintain 400 elk and 100 deer during severe winters. These proposed seedings would move the elk and deer away from the road and provide adequate forage to maintain the present herds during winters of heavy snow. Proper management and manipulation of vegetation would improve forage for wildlife as well as livestock, while improving soil erosion and watershed conditions (BLM, 1991). BLM prescriptions for mechanical and burning treatments of vegetation as well as seeding can be found in the *Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States* (BLM, 1991).

A maximum of about 700 acres in eight locations could be seeded to provide additional forage for wintering elk (**Figure 2-13**). However, the four main soils on the benches have varying capacity to



support grasses (see list below). The Travesilla soils support black sage, shadscale, and pinyon-juniper, so reseeding to grasses would not be as productive as the other soils and would require careful range management practices to maintain the reseeded grass community. Since most of the seeding sites are on the bench and mesa terrains, the Chupadera and Hernandez soils would support most of the seedings. The selected locations for reseeding are all downslope from the proposed road with adjacent thermal cover so big game using these seedings would not need to cross the road on a daily basis (**Figure 2-13**).

The Environmental Assessment for the seeding would tier off this EIS and BLM Vegetation EIS.

The dominant plants for each soil based on NRCS characteristic vegetation are as follows:

Chupadera Series: western wheatgrass, basin big sagebrush, Indian ricegrass, needle and thread grass, muttongrass  
 Gerst Series: shadscale, Salina wildrye, galleta, western wheatgrass  
 Hernandez Series: western wheatgrass, big sagebrush, Indian ricegrass, needle and thread, muttongrass  
 Travessilla Series: black sagebrush, Indian ricegrass, galleta, shadscale

**Table 3.5-1 Water Hollow Bench Soil Capabilities**

Soil Series	Assumed Range Site	Assumed Forage dry weight lb/acre*	Present Plant Community	Desired Plant Community
Chupadera	Upland Loam	1100	big sagebrush	Grass
Gerst	Semidesert Shallow Clay	550	pinyon - juniper	Shrub-grass
Hernandez	Semidesert Loam	700	pinyon - juniper	Grass
Travessilla	Semidesert Shallow Loam	400	pinyon - juniper	Shrub

\*These forage production rates are for areas of improved management.

The range sites and forage weights in **Table 3.5-1** are based upon the best available information at this time, given that the soils survey for this area has not been finalized or published. Range sites may vary somewhat from the above depending upon the exact position in the landscape. For example, while Chupadera may occur either in an upland or a semidesert range site, the existing NRCS information indicates that the upland site is correct for this area, though new information could change that assumption. Field studies (see step 1 below) would result in refinement of range site descriptions and specific acreages of each soils to be seeded. Mid-level (normal year as opposed to best or poor years) forage values were used based upon NRCS information for the soils, and in any case should not be presumed to be anything other than a reasonable estimate based upon NRCS studies. To provide a conservative estimate of seeding benefit, it has been assumed that 80% of the soils in the proposed seedings have an average annual production of forage of 700 lb/acre dry weight and 20 percent would have a forage of 400 lb/acre dry weight. This results in an estimate of 640 lb/acre dry weight combined (**Table 3.5-1**). That would result in the 700 acres of seeding providing support to 230 elk/month. Since the seedings would only receive concentrated use during periodic heavy snow years, the use factor could jump to 80% without damaging the forage; the seedings could support 230 elk for 2 months in heavy snow years.

An additional 180 acres has potential for seeding on the Saleratus Bench to provide forage for

approximately 60 elk for 2 months.

To provide the full forage potential of the seedings and the existing plant communities, spring cattle grazing would need to be managed carefully. Spring grazing of grasses removes early growth that then does not allow the plants to reach their full forage potential, which cannot be replaced prior to the winter season. For the best results, no grazing should occur on seeding areas for two full growing seasons (BLM, 1991).

The following steps would be taken in order to establish the seedings.

1. Field-verify the location of the Chupadera and Hernandez soils and adjust seeding locations as needed to maximize their coverage in the area to be seeded.
2. Determine area out of all the terrain suitable for seedings in the target areas.
3. Conduct cultural surveys and T&E plant species surveys on proposed seedings.
4. Remove, eliminate, or destroy all of the shrub and tree cover within the proposed seedings.
5. Broadcast hay mulch and fertilizer over the bare soil surface. (Fertilizer promotes the growth of seeded grasses over other plants.)
6. Drill seed mixture (**Table 3.5-2**) into terrain suitable for drilling. The action of the seed drill will turn the hay mulch and fertilizer into the mineral soil.
7. Broadcast seed in terrain not suitable for drilling and cover seed with harrow.
8. Establish photo points for monitoring.

**Table 3.5-2 Species Mixture for Wildlife Winter Range Seedings**

Common Name	Latin Name	Amount
blue grama	<i>Bouteloua gracilis</i>	2 lb/acre
western wheatgrass	<i>Pascopyrum smithii</i>	5 lb/acre
muttongrass	<i>Poa fendleriana</i>	3 lb/acre
Salina wildrye	<i>Agropyron salinii</i>	4 lb/acre
needle and thread	<i>Stipa comata</i>	4 lb/acre
alfalfa	<i>Medicago sativa</i> - var. <i>ladak</i> or <i>nomad</i>	2 lb/acre
antelope bitterbrush	<i>Purshia tridentata</i>	3 lb/acre
fourwing saltbush	<i>Atriplex canescens</i>	3 lb/acre
Mormon tea	<i>Ephedra viridis</i>	3 lb/acre
mountain mahogany	<i>Cercocarpus ledifolius</i>	3 lb/acre
winterfat	<i>Krascheninnikovia lanata</i>	3 lb/acre
Utah serviceberry	<i>Amelanchier utahensis</i>	3 lb/acre
<b>TOTAL</b>		<b>38 lb/acre</b>

**IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES AND RESIDUAL ADVERSE IMPACTS**

Depending on the Alternative selected, between 45 and 55 acres of permanent disturbance to habitat would occur as a result of the Proposed Action and Action Alternatives. Of the 92 to 146 acres of total disturbance that would occur as a result of the Proposed Action, between approximately 57 to 106 acres of habitat would be reclaimed based on which alternative is selected. Residual adverse impacts under Alternatives B, C, and D include habitat fragmentation and increased road kill.

**CUMULATIVE EFFECTS**

Past and present actions that have impacted wildlife include mining, road development, and construction of fencing along SR-10. Increased public access in the Quitchupah Creek area would occur as a result of the Proposed Action, which would increase noise and also disturbance to wildlife habitat. The reasonably foreseeable action of exploration and drilling of federal oil and gas leases may occur. Reclamation would occur on sites that do not enter into production.

The construction of fencing along Quitchupah Creek would impede wildlife movement in the area. Additional habitat fragmentation would likely occur due to continued road building, for developments such as gas or mineral exploration, possibly reducing small mammal, reptile, amphibian, and bird species populations along the Quitchupah Creek corridor. Applicant Committed Measures, discussed in Chapter 2 and earlier in this section, would prohibit grazing along 4.7 miles of riparian zones beginning two years from project approval. The protection of 4.7 miles of stream corridor would enhance the degraded riparian zone, increasing the extent and quality of wildlife habitats along the stream. The Salina Creek Vegetation Plan, on the fringes of the Cumulative Effects area in upper Broad Hollow, would manipulate the structure and composition of vegetation creating a mix of younger, more vigorous stands intermixed with mature vegetation (USFS, 2002). This project would contribute to improving forage and habitat conditions for wildlife and domestic livestock in the area.